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Editorial

Irritable Bowel Syndrome and Wheat Protein Correlation; What do we know?

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Population based studies have shown that about 15% of the world population have experienced the symptoms of irritable bowel syndrome (IBS) (1). IBS is a benign condition and usually presents in young women. All cases with IBS have impaired quality of life and anxiety state, but only about 30% of such patients seek help care (2). Despite lack of long term complication, this condition causes significant community health and economic burden due to global distribution of the disease.

Celiac disease (CD) is less common than IBS, but causes symptoms and impairment of quality of life in the early years of life. It also multiple late complications such as malignancy, impaired bone health, and impaired fertility and pregnancy outcome.

The reported prevalence rate of IBS in Iran was different; 1.1% in Tehran province, 3.3% and 3.6% in migrating nomads and industrial laborers, 5.8% in Sharekord city, 10.9% in Shiraz city, and even 21.5% in general population of Isfahan province (3-7). These differences were related to different geographic area, age, and diagnostic criteria.

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The seroprevalence of CD among general population is less than 1% in our population. Also geographic variation should be considered for this figure (8-11). But in patients with IBS the prevalence of CD has been more than general population and has been reported between 1 - 11.4% (12-16).

In a study by Shahbazkhani and colleagues, 12 out of 100 patients with IBS had positive serology for CD and all had March II or III in duodenal biopsy. Interestingly four patients had constipation dominant type IBS, which is different from our opinion for the presence of diarrhea to suspect CD (15). This figure is the highest reported prevalence of CD in patients with IBS.

In this issue of Govaresh Journal, an article is published by Moradniani and co-workers (17), about the rate of CD in patients presented with IBS. They reported 6.5% rate of CD in this group of patients, which is higher than our control population. Similar reports have been published previously by other researchers. Regarding their findings and other related documents some points should be mentioned.

In a recent meta-analysis of 36 studies, in 9,275 patients from 15,256 individuals, who were evaluated for IBS, the pooled ORs for positive IgA antigliadin antibody, endomyosial antibody AGAs, EMA (pls spell out) and/or tissue transglutaminase (t-TG), and biopsy-proven CD in patients with IBS versus controls were 3.21 (95% CI 1.55 - 6.65), 2.75 (95% CI 1.35 - 5.61), and 4.48 (95% CI 2.33 - 8.60), respectively. Despite inconsistent results in population based studies, this study concluded more positive serology and biopsy proven diagnosis of CD among patients diagnosed as having IBS than controls (18).

One of the cardinal manifestations of IBS is

change in bowel habits with intermittent or chronic diarrhea, which shares with CD. So most published guidelines suggest serology testing in such patients for early diagnosis of CD, which helps to treat the patients specifically by gluten free diet and to prevent long term consequences of CD (19). The British Society of Gastroenterology recommended active case finding, because CD is common and there is specific treatment for it. So they recommended screening by serology in high risk groups such as patients with iron deficiency anemia, Down's syndrome, type 1 diabetes mellitus (DM), osteoporosis, and IBS. In these high risk groups 2 - 5% prevalence of CD was reported in European countries (20).

In addition to reported higher rate of CD in patients with IBS, we are confronting with a specific gluten induced enteropathy in the IBS group. This condition may be more prevalent than CD in patients presenting with IBS symptoms. It is not accompanied by malabsorption, and all celiac serology and biopsy findings are absent. However, the symptoms relieve by the use of gluten free diet. This group of patients also presents with flatulence, abdominal distension, dyspepsia, and change in bowel pattern, which could be differentiated from IBS and CD (21).

It seems that a substantial proportion of patients, who have labeled as having IBS and have negative serology for CD, may have non-celiac gluten sensitivity. These subjects also have neither CD nor IgE-mediated allergy to wheat protein, but their symptoms disappear by gluten free diet.

In a study by Shahbazkhani and colleagues in a double placebo controlled study, the researchers evaluated the effect of gluten free diet in patients with IBS and negative CD serology, and no pathological findings of CD and IgE mediated allergy to wheat proteins. The use of gluten powder in comparison with gluten free powder for these cases resulted in overall symptom control in a significant proportion of them. They concluded that a significant proportion of patients who labeled as having IBS were sensitive to gluten. They suggested an algorithm for a trial of 6-week gluten and lactose free diet in patients with IBS even with negative serology and pathology for CD. If they responded to this trial the presumptive diagnosis of IBS should be ruled out for patients. This group of patient could be labeled as having non-celiac gluten sensitivity (NCGS). Interestingly some extra-intestinal manifestation of IBS could also be controlled by this dietary advice (22).

NCGS denotes to a variety of immunological, morphological, or symptomatic manifestations, in a patient who does not have celiac disease, but responds to gluten free diet. Diagnosis of this condition needs ruling out CD, and other inflammatory conditions. Such affected patients may have sensitivity to other parts of grains or have minimal or undiagnosed small intestinal inflammation (23).

So it should be suggested that in addition to search for celiac serology in all patients with IBS, as stated by Moradniani and colleagues (17) in this issue of the Journal, we may design more studies for evaluation of gluten free diet screening and differentiating patients with non-celiac induced enteropathy in the future. We need more well controlled randomized studies to evaluate the effect of gluten free diet in patients with IBS symptoms.

On the other hand, we should remember that a significant proportion of IBS cases are related to an infectious process or post infectious type IBS. So we are waiting for a significant decrease in the proportion of idiopathic or unknown pathogenesis of IBS in the near future.

REFERENCES

1. Lovell RM, Ford AC. Global prevalence of, and risk factors for, irritable bowel syndrome: a meta-analysis. *Clin Gastroenterol Hepatol* 2012;10:712-21.
2. Canavan C, West J, Card T. The epidemiology of irritable bowel syndrome. *Clin Epidemiol* 2014;6:71-80.
3. Khoshkrood-Mansoori B, Pourhoseingholi MA, Safaee A, Moghimi-Dehkordi B, Sedigh-Tonekaboni B, Pourhoseingholi A, et al. Irritable Bowel Syndrome: a Population Based Study. *J Gastrointestin Liver Dis* 2009;1:413-8.
4. Massarrat S, Saberi-Firoozi M, Soleimani A, Himmelmann GW, Hitzges M, Keshavarz H. Peptic ulcer disease, irritable bowel syndrome and constipation in two populations in Iran. *Eur J Gastroenterol Hepatol* 1995;7:427-33.
5. Hoseini-Asl MK, Amra B. Prevalence of irritable bowel syndrome in Shahrekord, Iran. *Indian J Gastroenterol* 2003 c;22:215-6.

6. Khademolhosseini F, Mehrabani D, Nejabat M, Beheshti M, Heydari ST, Mirahmadizadeh A,et al. Irritable bowel syndrome in adults over 35 years in Shiraz, southern Iran: prevalence and associated factors. *J Res Med Sci* 2011;16:200-6.

7. Keshteli AH, Dehestani B, Daghaghzadeh H, Adibi P. Epidemiological features of irritable bowel syndrome and its subtypes among Iranian adults. *Ann Gastroenterol* 2015;28:253-8

8. Shahbazkhani B, Malekzadeh R, Sotoudeh M, Moghadam KF, Farhadi M, Ansari R, et al. High prevalence of coeliac disease in apparently healthy Iranian blood donors. *Eur J Gastroenterol Hepatol* 2003;15:475-8.

9. Saberi-Firouzi M, Omrani GR, Nejabat M, Mehrabani D, Khademolhosseini F. Prevalence of celiac disease in Shiraz, southern Iran. *Saudi J Gastroenterol* 2008;14:135-8.

10. Ahadi Z, Shafiee G, Razmandeh R, Keshtkar AA, Najafi Sani M, Azemati B, et al. Prevalence of celiac disease among the Iranian population: A systematic review and meta-analysis of observational studies. *Turk J Gastroenterol* 2016;27:122-8.

11. Farahmand F, Mir-Nasseri MM, Shahraki T, Yourdkhani F, Ghotb S, Modaresi V, Khatami GR. Prevalence of Occult Celiac Disease in Healthy Iranian School Age Children. *Arch Iran Med* 2012;15:342-5.

12. Rostami Nejad M, Rostami K, Emami MH, Zali MR, Malekzadeh R. Epidemiology of Celiac Disease in Iran: A Review. *Middle East J Dig Dis* 2011;3:5-12.

13. Mahmoodi AR, Jafarihaydarlo A, Yasemi M, Hemati K, Peyman H. The Celiac Disease Prevalence in the Patients with Irritable Bowel Syndrome in the Ilam Province; A Cross Sectional Study from Western Iran. *J Clin Diagnostic Res* 2014;8:GC01-GC03.

14. Akhondi-Meybodi M, Rabei A, Salehi S. Frequency of Celiac Disease in Irritable Bowel Syndrome Patients with Predominant Diarrhea Referred to Gastroenterology Clinics in Yazd, Iran. *J Shahid Sadoughi Univ Med Sci* 2010;19:637-43.

15. Shahbazkhani B, Forootan M, Merat S, Akbari MR, Nasserimoghadam S, Vahedi H, et al. Coeliac disease presenting with symptoms of irritable bowel syndrome. *Aliment Pharmacol Ther* 2003;18:231-5.

16. Emami MH, Kouhestani S, Gholamrezaei, Hashemi M, Mahzouni P, Raeisi M, et al. Prevalence of celiac disease in patients with irritable bowel syndrome. *Govaresh* 2008;13:192-7.

17. Moradniani M, Mirbeik-Sabzevari Z, Aaliehpour A, Baharvand P. Demographic features and high prevalence of celiac disease in patients with Irritable Bowel Syndrome in Khoram Abad, Lorestan. *Govaresh* 2017;22:195-201.

18. Irvine AJ, Chey WD, Ford AC. Screening for Celiac Disease in Irritable Bowel Syndrome: An Updated Systematic Review and Meta-analysis. *Am J Gastroenterol* 2017;112:65-76.

19. World Gastroenterology Organisation Global Guidelines. *Celiac Disease*, July 2016.

20. Ludvigsson JF, Bai JC, Biagi F, Card TR, Ciacci C, Ciclitira PJ,et al. *Gut* 2014;63:1210-228.

21. Sapone A, Bai JC, Ciacci C, Dolinsek J, Green PHR, Hadjivassiliou M, et al. Spectrum of gluten-related disorders: consensus on new nomenclature and classification. *BMC Med* 2012;10:13.

22. Shahbazkhani B, Sadeghi AS, Malekzadeh R, Khatavi F, Etemadi M, Kalantri E, et al. Non-Celiac Gluten Sensitivity Has Narrowed the Spectrum of Irritable Bowel Syndrome: A Double-Blind Randomized Placebo-Controlled Trial. *Nutrients* 2015;7:4542-54.

23. Ludvigsson JF, Leffler DA, Bai JC, Biagi F, Fasano A, Green PH, et al. The Oslo definitions for coeliac disease and related terms. *Gut* 2013;62:43-52.